

Further Observations on the Red-tailed Tropic-bird at Sugarloaf Rock, Cape Naturaliste.—This account reports the results of visits to the Sugarloaf Rock, near Cape Naturaliste during the 1968-69 and 1969-70 nesting seasons of the Red-tailed Tropic-bird (*Phaethon rubricauda*). It supplements my earlier observations on the 1967-68 season (*W. Aust. Nat.*, 11 (2), 1968: 44).

As events turned out I was able to visit the nesting colony on the Rock only twice during each of these two seasons. It was a calm swim to the Rock on December 26, 1968, but the channel was turbulent on December 29. During the second season I visited the Rock on January 1, 1970 and February 2. My companions on one or the other of these trips were J. Shanks, S. Forbes, M. Hoskens and G. Chester.

During the 1969-70 season I calculated that 34 pairs were attempting to nest at the site. Three of these, however, were on the adjoining mainland where the chance of raising a brood, and it nearly always consists of only one, seems very unlikely—not one to our knowledge has yet succeeded in doing so.

I was unable to make an estimation of the nesting pairs in the 1968-69 season as we were able to visit the Rock only in the early part of the season. However the 1969-70 survey demonstrated the increase in colony size since it first came under our attention in the 1966-67 season. In that season there were only four nesting pairs. In 1967-68 there were 32 nesting pairs.

Only three birds in the 1969-70 season may have been non-breeders and this seemed about a typical ratio of birds each season without eggs. However these birds may have laid later, after our visits, or they may have lost their eggs.

Thus far the earliest date we have for finding an egg on the Rock was December 26, 1968, but as there were also two chicks present on that occasion laying must have commenced before mid-November. The latest date on which the colony was visited was April 7, 1968, when there were still 8 chicks and 5 eggs. So the period of egg-laying must extend over at least three and possibly four months.

Of the 65 birds banded thus far, 15 were young at the nest. No young banded on the Rock have, to our knowledge, returned there to nest. New birds (i.e. unbanded ones) were, however, still arriving in the 1969-70 season. We banded 11 such individuals in that season, but there certainly would have been a few more.

Of the pairs that we have recorded as nesting over more than one season only one stayed together and used the same site three times. Two pairs did this twice. Three individuals continued on the same nest site but their mates were never determined. One bird occupied the same site, but with a new partner. Two birds changed their site and partner. Nine pairs were never recorded during more than one season, and 7 individuals whose mates were never determined have not yet been recorded subsequently.

Dr. G. Chester found several of the young birds badly injured around the head when he visited the Rock in April 1968. I found the remains of such a one (identified from the band) at the site next season, as well as the remains of an unbanded young one.

No banded birds have been reported as yet from any place away from the Sugarloaf area.

When handled the young birds often regurgitate almost complete fish (the head is usually missing). These, along with skeletal remains from the nest depressions, were collected and sent for identification to Mr. R. J. McKay at the W.A. Museum. The 1968-69 collection included one King Garfish (*Scombresox forsteri*), a hemirhamphid garfish and a beloniform fish. There were also three sardines (probably *Sardinops*) and three flying fish (Exocoetidae).

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